

HDP-CVD DEPOSITION PROCESS FOR FILLING HIGH ASPECT RATIO GAPS

ABSTRACT OF THE DISCLOSURE

A method for forming a silicon oxide layer over a substrate disposed in a
5 high density plasma substrate processing chamber. The method includes flowing a
process gas that includes a silicon-containing source, an oxygen-containing source and
a fluorine-containing source into the substrate processing chamber and forming a
plasma from said process gas. The substrate is heated to a temperature above 450°C
during deposition of said silicon oxide layer and the deposited layer has a fluorine
10 content of less than 1.0 atomic percent.

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